FISCAL ATTACKS UPON WHITE-FRONTED BEE-EATERS

Stephen T. Emlen

The Fiscal *Lanius collaris* is an omnivorous predator whose normal diet consists primarily of large insects. The hunting technique is to perch on exposed branches of bushes or low trees and visually search for prey. When an item is spotted, the shrike makes a short downward flight, pouncing on the prey on the ground. The food is then brought back to the perch, eaten directly if it is a small item, or impaled on a thorn and fed upon, if it is unusually large.

Although the diet of Fiscals is primarily insectivorous, they have been seen to take small lizards (pers. obs.) and birds (see for example, Durfey & Durfey 1977). Fiscals also occasionally prey upon White-fronted Bee-eaters *Merops bullockoides*, a species almost as large as the predator itself. (*M. bullockoides* typically weigh 33 - 35 g; the mean weight of 14 *L. collaris* in the collection of the National Museums of Kenya was 39 g.) My observations were made during the course of a long-term study of the social behaviour of the White-fronted Bee-eater in the Nakuru area of the rift valley of Kenya (see Hegner, Emlen, Demong & Miller 1979).

Fiscals and White-fronted Bee-eaters share the same habitat near Nakuru, and territorial groups of the two species frequently inhabit completely overlapping areas. Due to a partial similarity in their diets, one would expect a certain amount of competition between the two species - and this seems to be the case. Fiscals are dominant in these interactions, however, and readily supplant bee-eaters from preferred foraging perches.

My evidence that Fiscals occasionally prey upon White-fronted Bee-eaters comes from four observations.

1. In the late afternoon, White-fronted Bee-eaters congregate at colony roosting sites where they spend one to two hours socializing before going to roost. At this time birds often sunbathe, crooking their necks far to the side, and/or pressing their bodies against the sun-baked dirt of the colony cliff face. They orient their bodies towards the sun, raise their back and nape feathers, and often stretch their wings out to the side. Eyes are closed and the birds seem almost to doze in the heat.

   Such sun-bathing is a socially contagious behaviour at the colonies, and often as many as 50 - 60 individuals will sun in a group, their bodies tightly packed together on the section of the cliff receiving the late afternoon sun.

   On three different occasions I have observed Fiscals disrupt such sun-bathing gatherings, diving into the inattentive gruops of bee-eaters at full speed. In each instance some member of the bee-eater assemblage sighted the approaching Fiscal and gave the alarm, causing the bee-eaters to scramble into the air. On two of the occasions, the Fiscal attack came very close, with the shrike striking the cliff within a few centimetres of a laggard among the explosively departing bee-eaters.

2. Upon fledging from their tunnelled nests, young White-fronted Bee-eaters remain dependent upon adult members of their nesting group for three to six weeks. Their flight capabilities are inadequate for highly successful insect capture, and only slowly do they achieve the aerial manoeverability and aerobatic capabilities that bring their aerial hunting success up to that of the adults. As a result of their rather clumsy flight at this time, they can fall easy prey to avian predators (raptors).

   Once, while watching a very young juvenile (2 weeks post-fledging), I observed it to be repeatedly dived at by a Fiscal. Had the Fiscal merely dived once, I would have considered the incident merely a supplanting

encounter. But the Fiscal repeatedly followed and dived at the juvenile as the latter moved to four successive perches. The three adult members of the bee-eater group became highly agitated, clustering with the juvenile and uttering repeated *kek-kek* alert/alarm notes. After the fourth 'miss', the Fiscal departed and continued its foraging elsewhere.

3. As part of some experiments aimed at determining the response of White-fronted Bee-eaters to territorial intruders, Robert E. Hegner placed a mounted bee-eater specimen loaned by the National Museums, on a fencepost and retreated into a nearby hide to observe the results. Although other bee-eaters ignored the mounted specimen, after a time Hegner observed a Fiscal dive at full speed into the mount, striking it with considerable force. There was no question but that this was a predatory attack and, had the bee-eater been a living bird, that it would have almost certainly been killed.

4. Finally, on one occasion, I found a dead and partially eaten White-fronted Bee-eater impaled on a thorn of an acacia tree immediately adjacent to an actively breeding bee-eater colony.

These four observations provide strong evidence that Fiscals can be predators upon other birds roughly their own size. Normally, White-fronted Bee-eaters can easily detect and avoid attacking Fiscals. The Fiscal must rely upon surprise and the speed of its direct approach for, once in the air, it is no match for the manoeverability of the bee-eaters. Not surprisingly, both on the feeding territories and at the colonies, bee-eaters keep a close watch on near-by Fiscals. Any sudden flight or approach by a Fiscal triggers an immediate sounding of the *kek-kek* alert/alarm note by bee-eaters in the vicinity. But the alert is short-lived, and the bee-eaters soon return to their normal activities. This supports the contention that Fiscals only pose a threat when they can closely approach and surprise their avian prey. Thus it is likelu that only the unaware or the unhealthy are usual victims. This is reinforced by the fact that the one case of an impaled bee-eater was found adjacent to a sun-bathing spot at a colony cliff face.

REFERENCES

DURFEY, F. & DURFEY, R. 1977. Preying by Fiscal Shrike on Streaky Seed-eater. *EANHS Bulletin* 1977: 132-134.

HEGNER, R.E., EMLEN, S.T., DEMONG, N.J. & MILLER, C.E. 1979. Helpers at the nest in the White-fronted Bee-eater. *Scopus* 3: 9-13.

Stephen T. Emlen, Cornell University, Division of Biological Sciences, Section of Neurobiology and Behavior, Langmuir Laboratory, Ithaca, New York 14850, USA.

(Received 20 June 1979)